

500 CCL -500

0 AMPLITUDE-MV 0

0 GR API 200

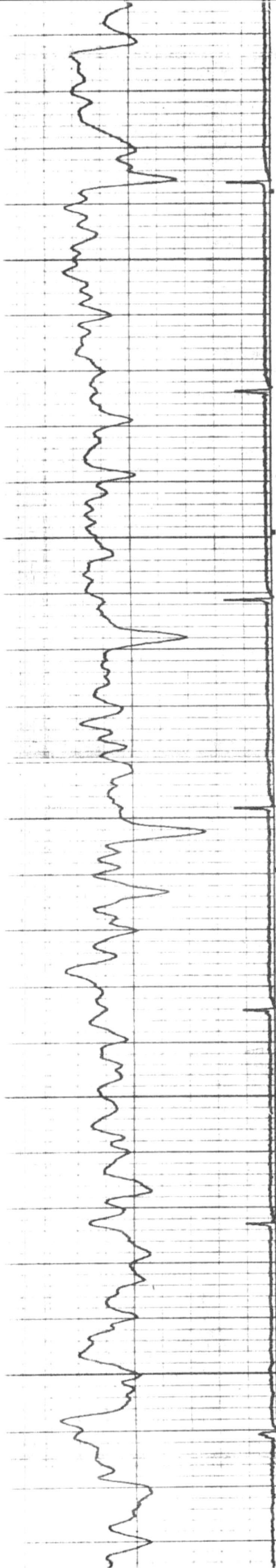
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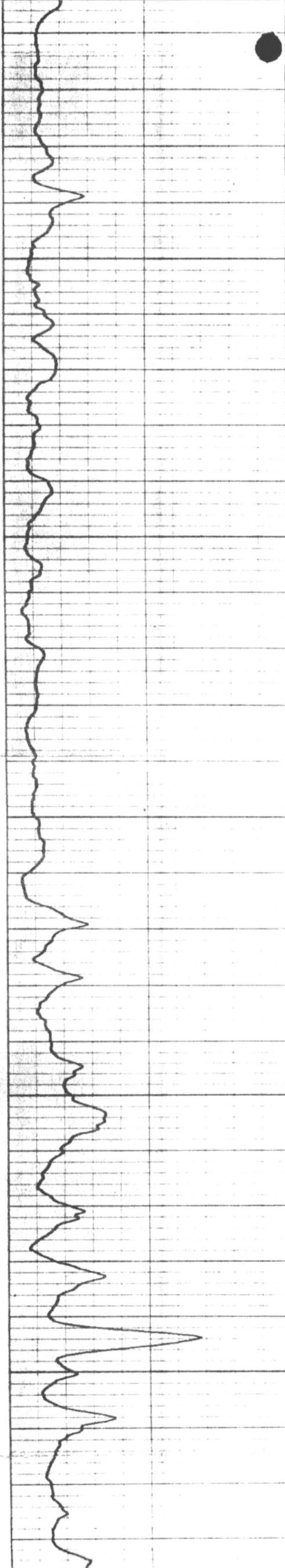
Est Cement  
Top 3110

3130' TOP

03200

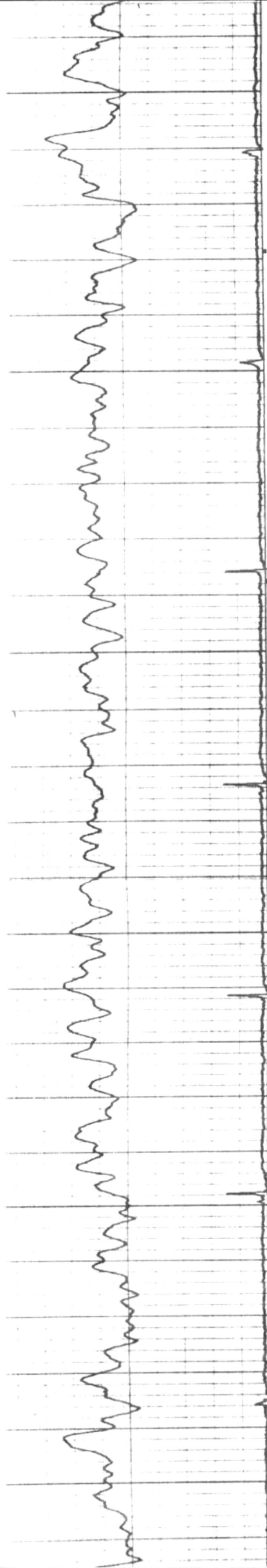


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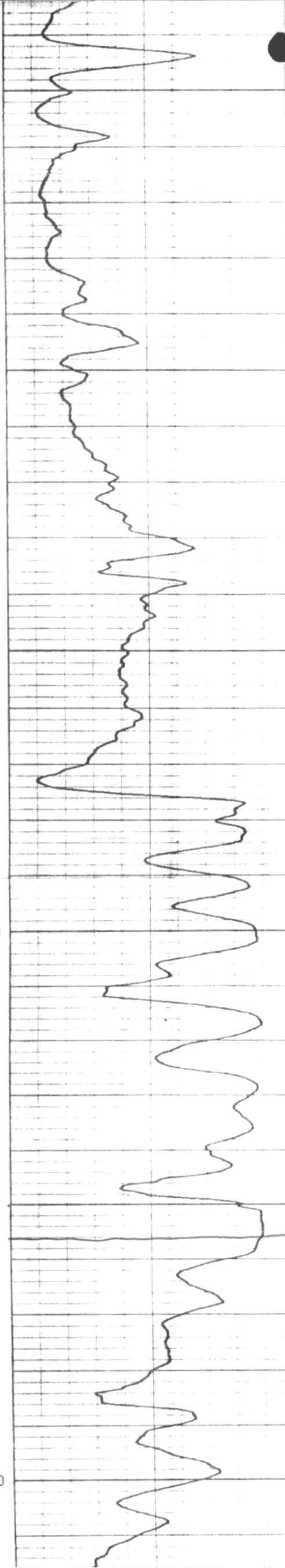
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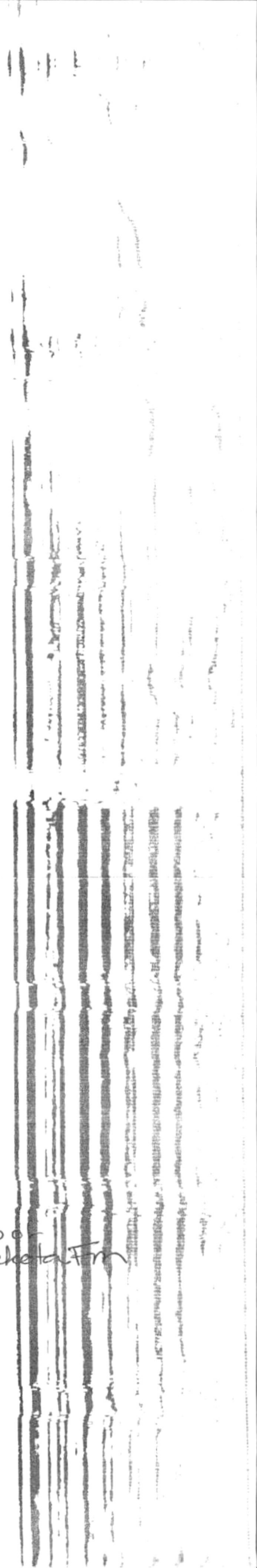
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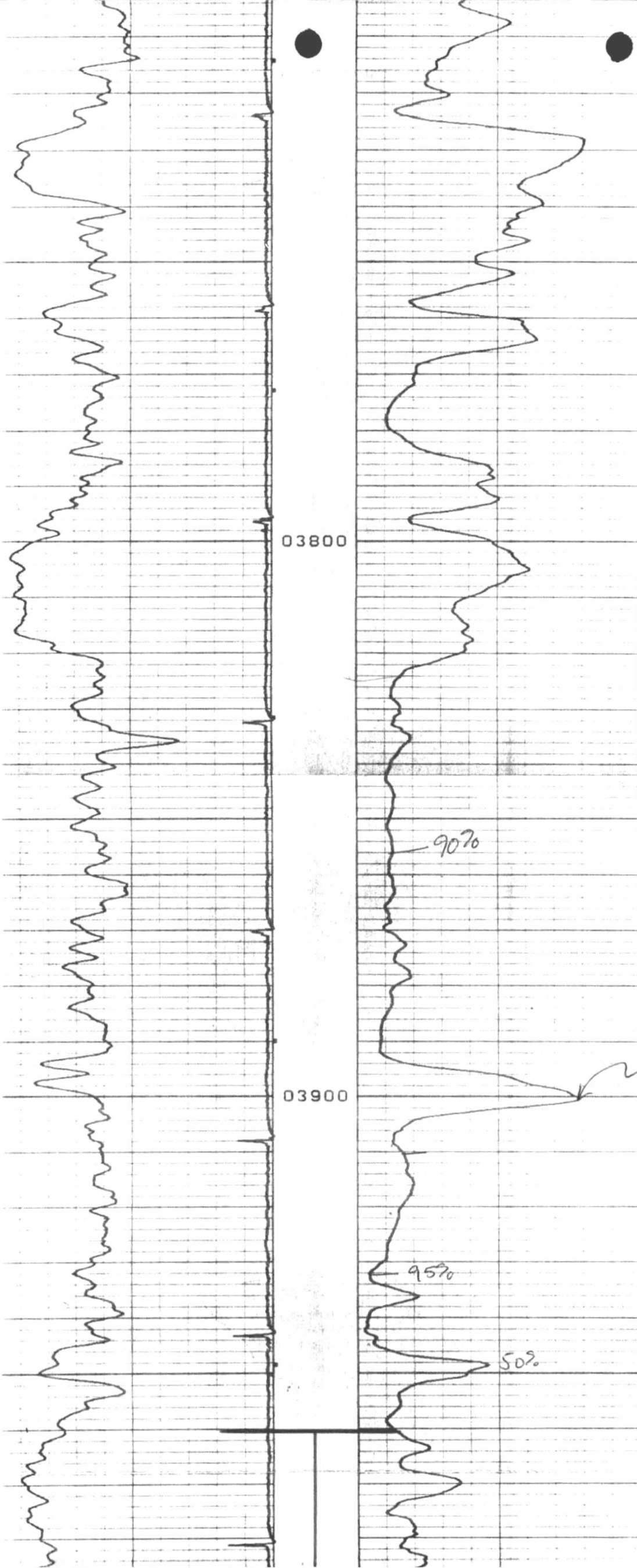
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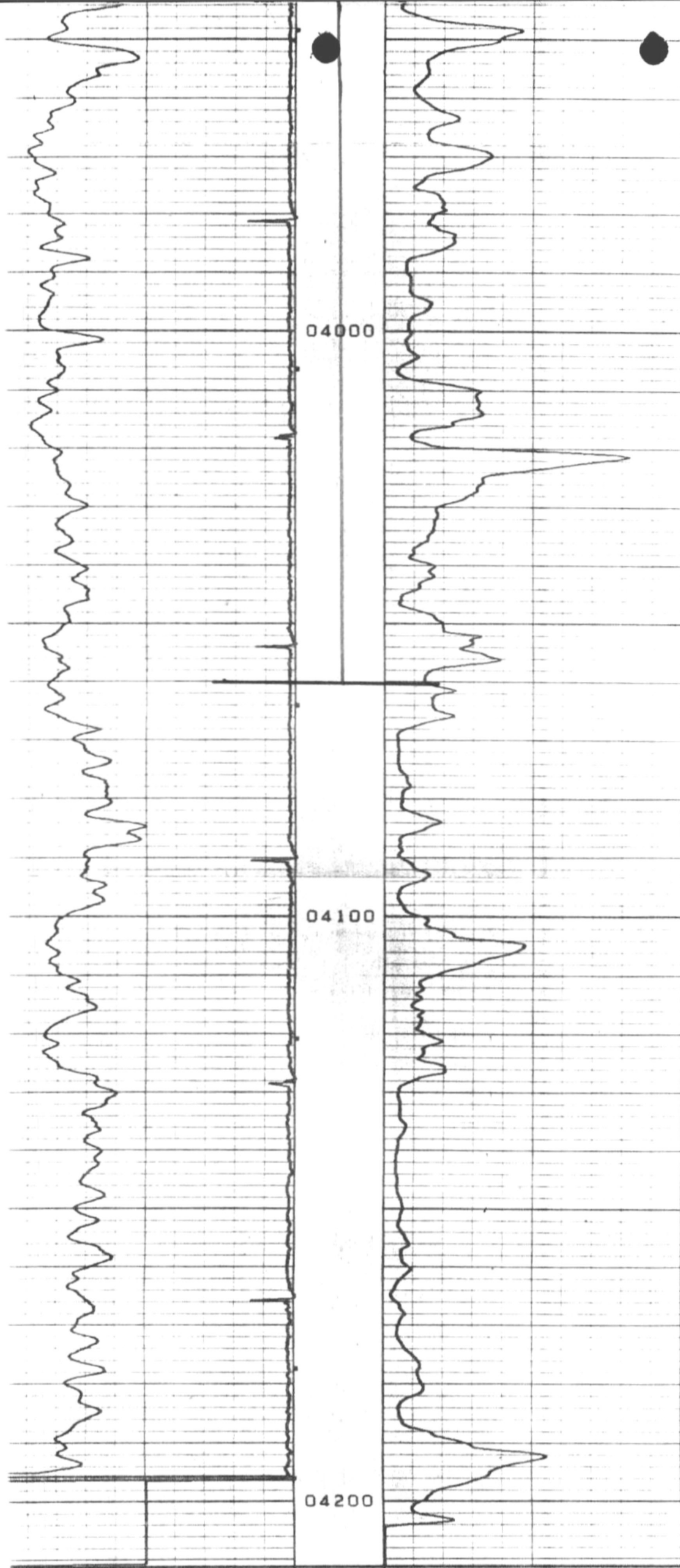
Top of  
Dakota Fm





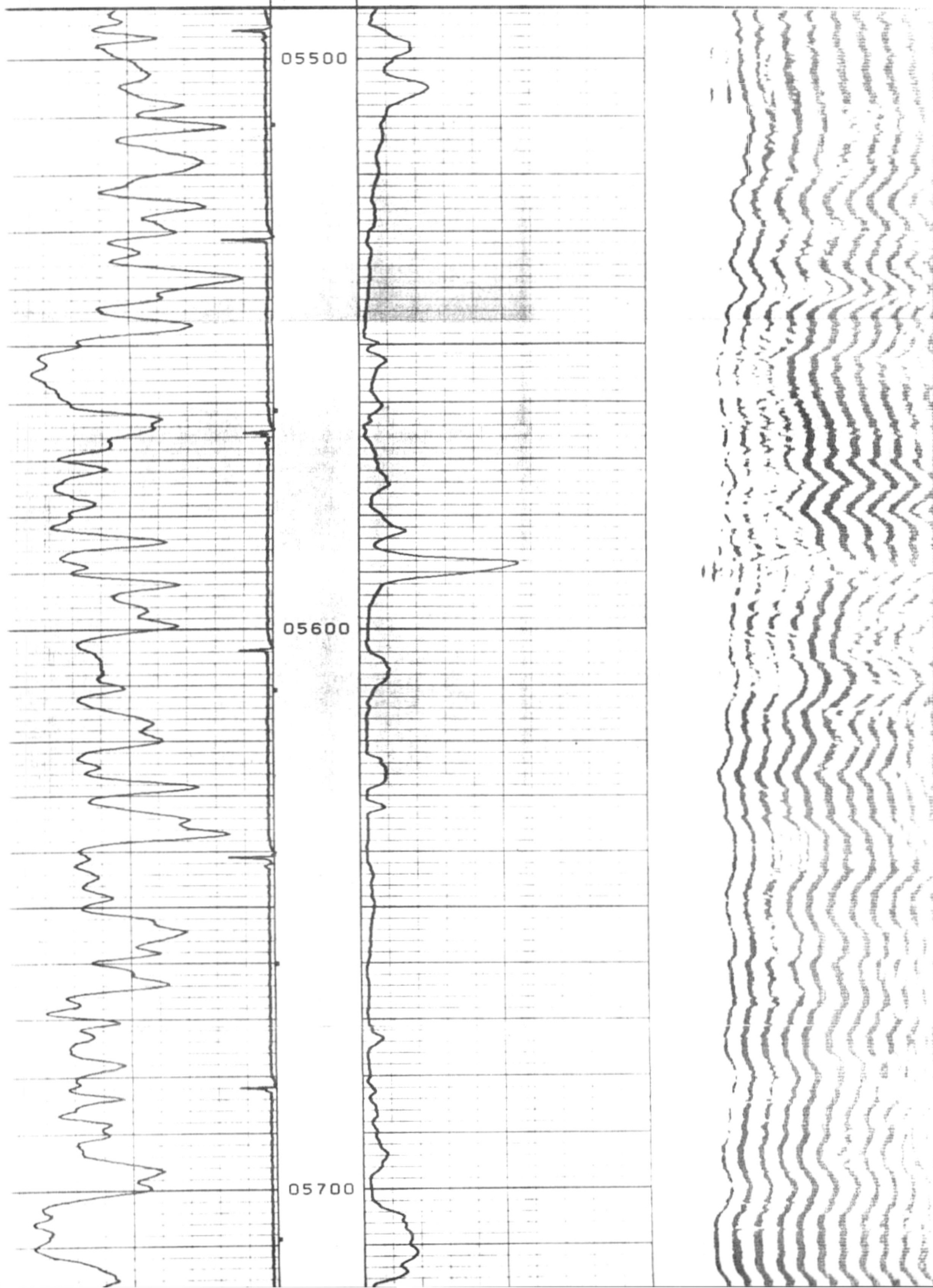
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bind @ 3900





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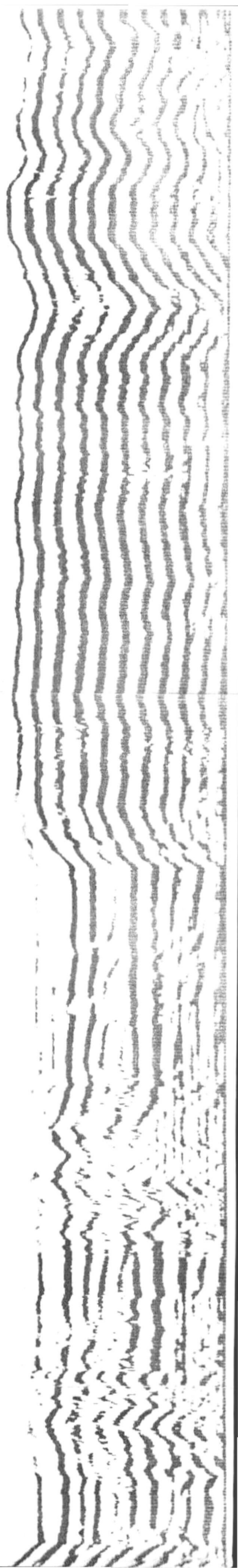
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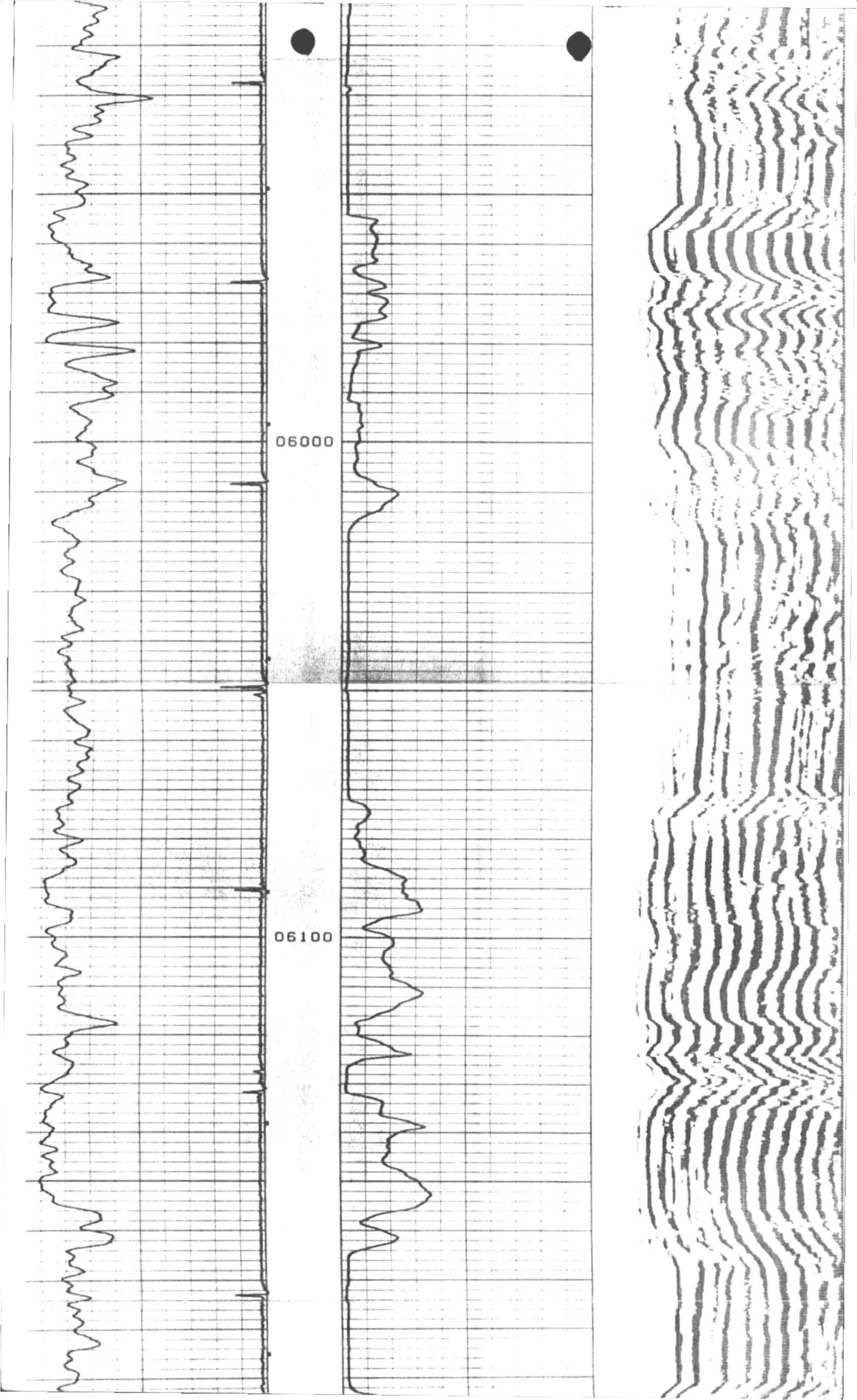
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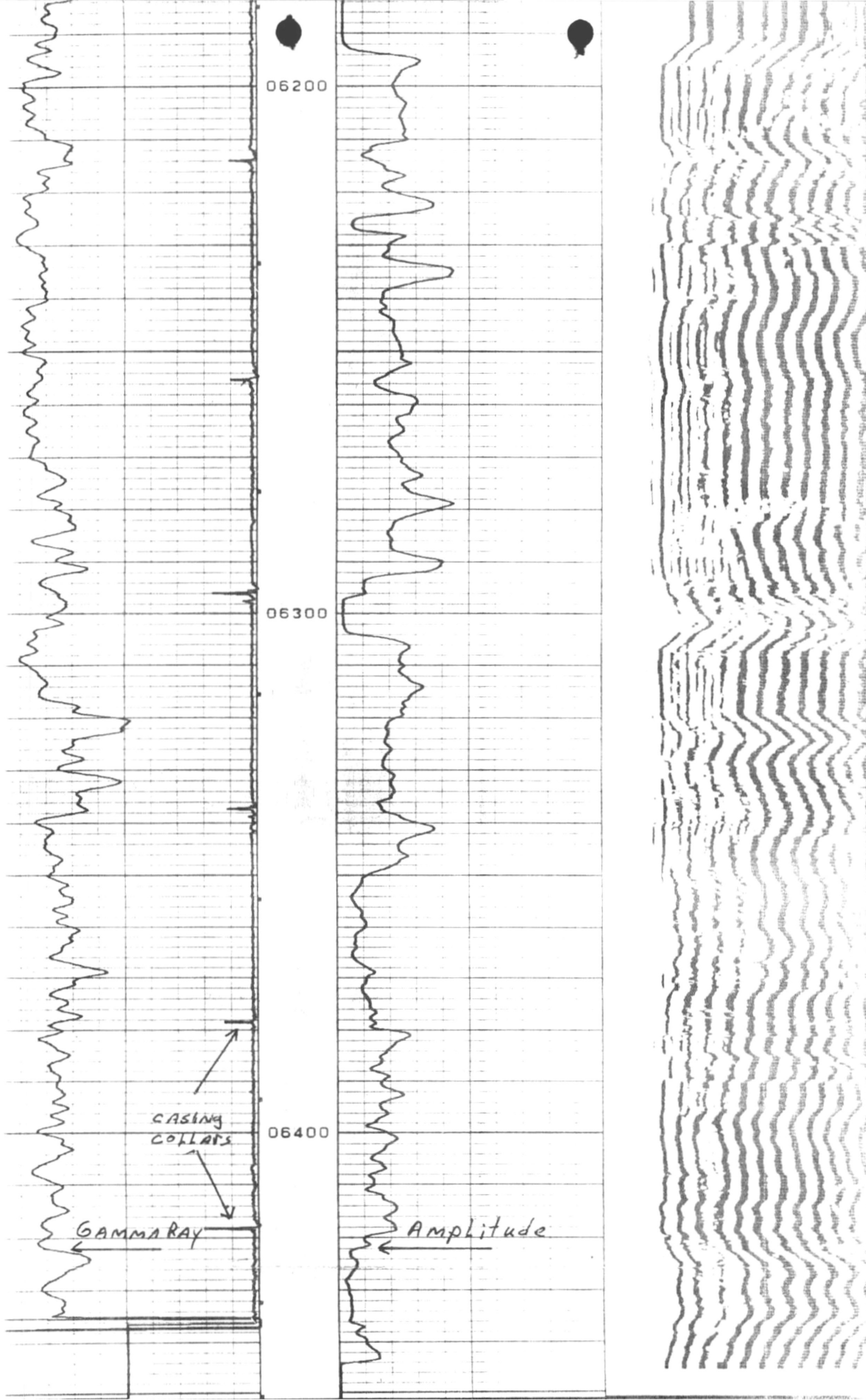
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06400

CASING  
COLLARS

GAMMA RAY

Amplitude





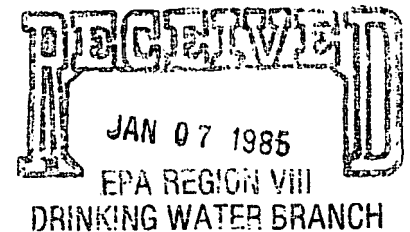
# Century Oil & Gas Corporation

Suite 800  
7887 E. Belleview Avenue  
Englewood, Colorado 80111

Phone 303 694-1533  
RCA Telex 216149

January 2, 1985

Ms. Laura Clemmens  
Environmental Scientist  
United States Environmental Protection Agency  
Region VIII  
1860 Lincoln Street  
Denver, CO 80295-0699



Re: Underground Injection Control (UIC) 8WM-DW  
Permit Applications for:  
Vickers #1 SWD Well ✓  
Permit No. MTS21PR-0002  
Goings #1 SWD Well  
Permit No. MTS21PR-0003  
Clark #1 SWD Well  
Permit No. MTS21PR-0004

Dear Ms. Clemmens:

We have your letter dated December 12, 1984 (8WM-DW) and Charles J. Boyter's letter dated December 20, 1984 (8MO) relative the captioned wells.

Our initial review of your requirements indicates that a Surety Bond may be the simplest procedure. In order to determine the amount you would require, we enclose herewith completed Worksheet/Questionnaire with copies of the permit applications and attachments for the three wells.

If you have any questions or require additional information, please call.

Very truly yours,

CENTURY OIL & GAS CORPORATION

B. M. Babcock  
Administrative Assistant

/b

Enc.

cc: Charles J. Boyter  
Montana EPA office

**WORKSHEET/QUESTIONNAIRE FOR APPLICANTS**  
**SEEKING BLANKET COVERAGE OR FINANCIAL STATEMENT COVERAGE**

**Company Name:** Century Oil & Gas Corporation

**Date Company Started:** 2-4-74

**Public:** X  
**Private:**       

The following information on production fields must be supplied. The information should cover:  
 (1) the field(s) associated with the injection wells in this financial responsibility application;  
 (2) at least one currently producing field that the applicant has operated for more than five years; and  
 (3) at least one field with an estimated remaining operating life exceeding five years.

	Field Name	Field Location	Date Production Started	Number of Producing Wells	Number of Injection Wells	Wells Plugged	Estimated Remaining Operating Life of Field
1.	Northwest Poplar	T. 29 N., R. 50 E. Roosevelt County, MT	June, 1981	6	2	1	30 years
2.	Badger Creek	T. 29 N., R. 50 E. Roosevelt County, MT	March, 1983	2	1	1	20 years
3.							
4.							
5.							

Note: Century has not operated any producing field for more than five years.

**I certify that the information provided above is correct.**

**Signature of Professional Engineer:** \_\_\_\_\_

**Date:** \_\_\_\_\_

or

**Signature of Consulting Engineer:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Signature of Operations Manager:** \_\_\_\_\_

**Date:** December 31, 1984

*Jack B. McWilliams*  
 J. B. McWilliams

Form <b>4</b> UIC	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY <b>UNDERGROUND INJECTION CONTROL PERMIT APPLICATION</b> <i>(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)</i>		I. EPA ID NUMBER T/A C	
READ ATTACHED INSTRUCTIONS BEFORE STARTING FOR OFFICIAL USE ONLY				
Application approved mo day year		Date Received mo day year		Permit/Well Number
II. FACILITY NAME AND ADDRESS Facility Name <b>Vickers #1 SWDW</b> Street Address <b>Northwest Poplar Field</b> City <b>Roosevelt County</b>				
III. OWNER/OPERATOR AND Owner/Operator Name <b>Century Oil &amp; Gas Corporation</b> Street Address <b>7887 East Bellevue, Suite 800</b> City <b>Englewood</b>				
State <b>MT</b>		ZIP Code <b>59001</b>		State <b>CO</b>
ZIP Code <b>80111</b>		V. SIC CODES <b>1311</b>		
IV. OWNERSHIP STATUS (Mark 'x') <input type="checkbox"/> A. Federal <input type="checkbox"/> B. State <input checked="" type="checkbox"/> C. Private <input type="checkbox"/> D. Public <input type="checkbox"/> E. Other (Explain)				
VI. WELL STATUS (Mark 'x') <input checked="" type="checkbox"/> A. Operating Date Started mo day year <b>4 1 83</b>				
<input type="checkbox"/> B. Modification/Conversion <input type="checkbox"/> C. Proposed				
VII. TYPE OF PERMIT REQUESTED (Mark 'x' and specify if required) <input checked="" type="checkbox"/> A. Individual <input type="checkbox"/> B. Area Number of Existing wells: <b>1</b> Number of Proposed wells: <b>1</b> Name(s) of field(s) or project(s): <b>Northwest Poplar</b>				
VIII. CLASS AND TYPE OF WELL (see reverse) A. Class(es) (enter code(s)) <b>II</b>				
B. Type(s) (enter code(s)) <b>D</b>				
C. If class is "other" or type is code 'x,' explain				
D. Number of wells per type (if area permit)				
IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT A. Latitude Deg Min Sec <b>29N 50E 6 SE 660</b>				
B. Longitude Deg Min Sec <b>29N 50E 6 SE 660</b>				
Township and Range <b>29N 50E 6 SE 660</b>				
Feet from Line <b>2130</b>				
X. INDIAN LANDS (Mark 'x') <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				

Vickers

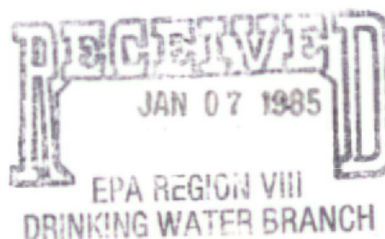
## XI. ATTACHMENTS

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application:

## XII. CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (40 CFR 144.21)





Form <b>4</b> UIC	 <b>UNITED STATES ENVIRONMENTAL PROTECTION AGENCY</b> <b>UNDERGROUND INJECTION CONTROL</b> <b>PERMIT APPLICATION</b> <i>(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)</i>	I. EPA ID NUMBER	
			T/A C

**READ ATTACHED INSTRUCTIONS BEFORE STARTING  
FOR OFFICIAL USE ONLY**

Application approved mo day year	Date Received mo day year	Permit/Well Number	Comments

II. FACILITY NAME AND ADDRESS		III. OWNER/OPERATOR AND ADDRESS	
Facility Name Vickers #1 SWDW		Owner/Operator Name Century Oil & Gas Corporation	
Street Address Northwest Poplar Field		Street Address 7887 East Belleview, Suite 800	
City Roosevelt County	State MT	ZIP Code	
		City Englewood	State CO
		ZIP Code 80111	

IV. OWNERSHIP STATUS (Mark 'x')	V. SIC CODES
<input type="checkbox"/> A. Federal <input type="checkbox"/> B. State <input checked="" type="checkbox"/> C. Private <input type="checkbox"/> D. Public <input type="checkbox"/> E. Other (Explain)	1311

VI. WELL STATUS (Mark 'x')	
<input checked="" type="checkbox"/> A. Operating Date Started mo day year 4 1 83	<input type="checkbox"/> B. Modification/Conversion <input type="checkbox"/> C. Proposed

VII. TYPE OF PERMIT REQUESTED (Mark 'x' and specify if required)	
<input checked="" type="checkbox"/> A. Individual <input type="checkbox"/> B. Area	Number of Existing wells: 1 Number of Proposed wells: Name(s) of field(s) or project(s): Northwest Poplar

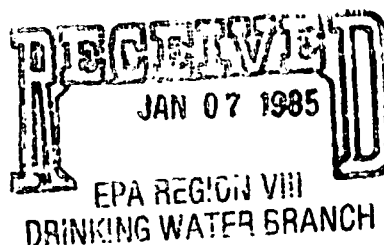
VIII. CLASS AND TYPE OF WELL (see reverse)			
A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code "x," explain	D. Number of wells per type (if area permit)
II	D		

IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT										X. INDIAN LANDS (Mark 'x')			
A. Latitude		B. Longitude		Township and Range									
Deg	Min	Sec	Deg	Min	Sec	Twsp	Range	Sec	1/4 Sec	Feet from	Line	Feet from	Line
						29N	50E	6	SE	660	S	2130	E

XI. ATTACHMENTS	
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions) FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application:	

XII. CERTIFICATION	
--------------------	--

*I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (See 40 CFR 144.2).*



ATTACHMENTS TO FORM 4  
Vickers #6-15 SWDW

- A. AREA OF REVIEW METHODS (Exhibit I)
  - fixed radius of 1/4 mile from the wellbore (Montana)
- B. MAPS OF WELLS/AREA AND AREA OF REVIEW (Exhibits I, II, III)
  - topographic map and disposal facility layout
- C. CORRECTIVE ACTION PLAN AND WELL DATA (Exhibits IV, V, VI, VII, VIII)
  - well data for all wells within one mile: Vickers #6-15 SWDW, Cox #7-1, Foote #8-5, Mason #7-16, Tribal #1
- D. MAPS AND CROSS SECTIONS OF USDSW
  - does not apply to Class II wells
- E. NAME AND DEPTH OF USDWS (Class II) (Exhibit IX)
  - geologic name and depth to bottom of all underground sources of drinking water
- F. MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA
  - does not apply to Class II wells
- G. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II) (Exhibit IX)
  - geologic data on injection zone and lithologic description, geological name, thickness, depth and fracture pressure
- H. OPERATING DATA (Exhibits X, XI)
  - operating data and disposal fluids characteristics
- I. FORMATION TESTING PROGRAM
  - does not apply to existing Class II wells
- J. STIMULATION PROGRAM
  - no stimulation program proposed
- K. INJECTION PROCEDURES (Exhibit III)

- L. CONSTRUCTION PROCEDURES (Exhibit XIII) ..
- M. CONSTRUCTION DETAILS (Exhibit XIII)
- N. CHANGES IN INJECTED FLUID
  - Class III wells only
- O. PLANS FOR WELL FAILURES (Exhibit XIV)
  - contingency plans
- P. MONITORING PROGRAM
  - daily pumper visual inspection
- Q. PLUGGING AND ABANDONMENT PLAN (Exhibit XV)
- R. NECESSARY RESOURCES (Exhibit XVI)
- S. AQUIFER EXEMPTIONS
  - not applicable
- T. EXISTING EPA PERMITS
  - none
- U. DESCRIPTION OF BUSINESS (Exhibit XVII)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460



# PLUGGING AND ABANDONMENT PLAN

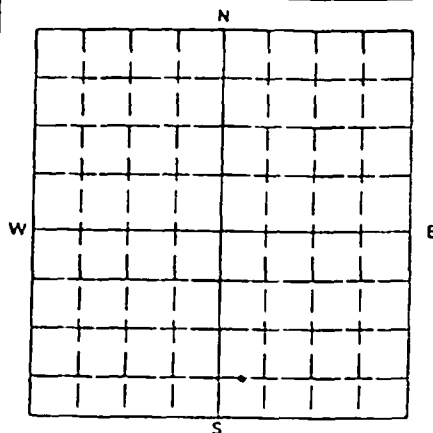
## NAME AND ADDRESS OF FACILITY

Vickers #6-15 SWDW  
SWSE Section 6-T29N-R50E  
Roosevelt County, Montana

## NAME AND ADDRESS OF OWNER/OPERATOR

Century Oil & Gas Corporation  
7887 East Belleview, Suite 800  
Englewood, Colorado 80111

LOCATE WELL AND OUTLINE UNIT ON  
SECTION PLAT — 640 ACRES



STATE

MT

COUNTY

Roosevelt

PERMIT NUMBER

NA

SURFACE LOCATION DESCRIPTION :

SW 1/4 OF SE 1/4 OF 1/4 SECTION 6 TOWNSHIP 29N RANGE 50E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 660 ft. from (N/S) Line of quarter section

and 2130 ft. from (E/W) Line of quarter section

TYPE OF AUTHORIZATION

- ☒ Individual Permit  
☐ Area Permit  
☐ Rule

Number of Wells 1

WELL ACTIVITY

- ☐ CLASS I  
☒ CLASS II  
☒ Brine Disposal  
☐ Enhanced Recovery  
☐ Hydrocarbon Storage  
☐ CLASS III

Lease Name Vickers

Well Number 6-15

## CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8 5/8	24	418	418	12 1/4
5 1/2	15.5 & 17	6508	6508	7 7/8

## METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☒ The Balance Method  
☐ The Dump Bailer Method  
☐ The Two-Plug Method  
☐ Other

## CEMENTING TO PLUG AND ABANDON DATA

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	5 1/2	5 1/2					
Depth to Bottom of Tubing or Drill Pipe (ft.)	4060	1200					
Sacks of Cement To Be Used (each plug)	100	155					
Slurry Volume To Be Pumped (cu. ft.)	106	164					
Calculated Top of Plug (ft.)	3286	Surface					
Measured Top of Plug (if tagged ft.)	NA	NA					
Slurry Wt (Lb. Gal.)	16.4	16.4					
Type Cement or Other Material (Class III)	Class H	Class H					

## LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

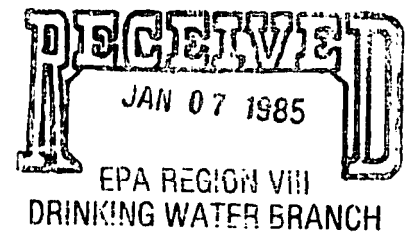
From	To	From	To
3960	4060		

Total Cost of Plug Job

\$10,000

CERTIFICATION





July 17, 1984

Chief, Drinking Water Branch  
U. S. Environmental Protection Agency  
(SWM-DW)  
1360 Lincoln Street  
Denver, Colorado 80295

Re: Permit Applications for  
Century Oil & Gas Corporation  
Produced Water Disposal Wells  
Goings #1, Vickers #1, Clark #1  
Northwest Poplar Field  
Roosevelt County, Montana

Gentlemen:

Further to that letter request of June 20, from John F. Wardell (REF: SWM-DW) and my telephone conversation with Richard Long of July 11, please find enclosed completed applications for the subject wells referenced above. As the Cox #1 salt water disposal well, mentioned in your June 20 letter, was never drilled, an application for this well is not submitted.

Should you have questions regarding the application, please contact the undersigned.

Very truly yours,

CENTURY OIL & GAS CORPORATION

Jack B. McWilliams  
Production Manager

JBM/kw  
Enclosures



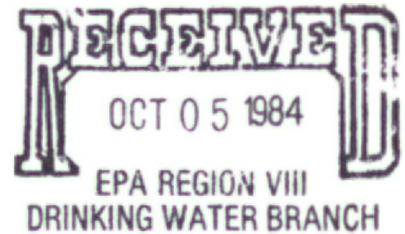
# Century Oil & Gas Corporation

Suite 800  
7887 E. Belleview Avenue  
Englewood, Colorado 80111

Phone 303 694-1533  
RCA Telex 216149

September 28, 1984

Mr. Max H. Dodson, Director  
Water Management Division  
United States Environmental  
Protection Agency  
Region VIII  
1860 Lincoln Street  
Denver, Colorado 80295



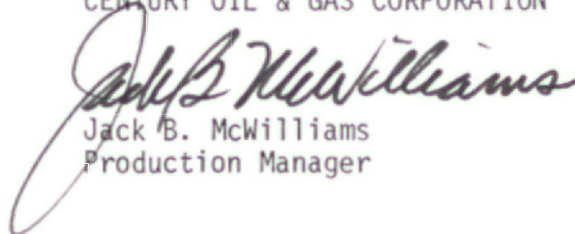
Re: Underground Injection Control (UIC)  
Permit Application for  
Vickers #1 SWDW  
Permit No. MTS21PR-0002

Dear Mr. Dodson:

Further to your letter REF: 8WM-DW of September 25, 1984 regarding additional information necessary for clarification of the subject application, please find attached data in support of same.

Very truly yours,

CENTURY OIL & GAS CORPORATION

  
Jack B. McWilliams  
Production Manager

JBM/kw  
Attachment

VICKERS #1 SWDW  
(Permit No. MTS21PR-0002)

1. AREA OF NOTIFICATION:

Mr. Bill Moomey, Land Manager with Century, has sent certified letters of intent to permit to each owner of land with a copy forwarded to the EPA.

2. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES:

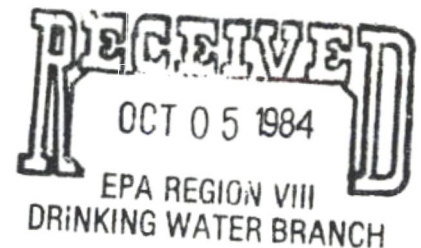
The fracture gradient of the injection formation (Dakota) is unknown as operators of Dakota disposal wells in the area to our knowledge have never fracture stimulated the formation. Our operations since inception have never exceeded what we would assume to be the fracture pressure of the Dakota or approximately 2700-3000 psi. To date, our surface injection pressures have not exceeded 850 psig and our stimulation pressures when we have acidized the Dakota have never exceeded 1100 psi surface. Typical surface injection pressures at our disposal facility range from 400-650 psig at 100-1000 BWPD.



# Century Oil & Gas Corporation

September 28, 1984

United States Environmental  
Protection Agency  
Region VIII  
1860 Lincoln Street  
Denver, Colorado 80295



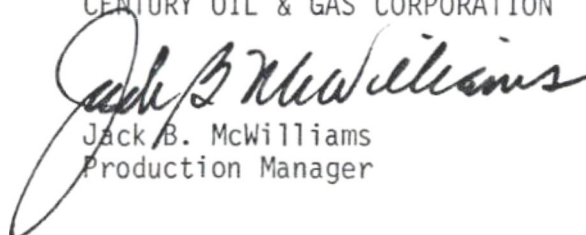
Re: Underground Injection Control (UIC)  
Permit Applications for:  
Vickers #1 SWDW (Per. #MTS21PR-0002)  
Goings #1 SWDW (Per. #MTS21PR-0003)  
Clark #1 SWDW (Per. #MTS21PR-0004)

Gentlemen:

Further to our telephone conversation with Jim Boyter of your Montana Operations office of September 26, please find attached additional information necessary for clarification of the subject applications.

Very truly yours,

CENTURY OIL & GAS CORPORATION

  
Jack B. McWilliams  
Production Manager

JBM/kw  
Attachments



VICKERS #1 SWDW  
(Permit No. MTS21PR-0002)  
GOINGS #1 SWDW  
(Permit No. MTS21PR-0003)  
CLARK #1 SWDW  
(Permit No. MTS21PR-0004)

1. AREA OF NOTIFICATION:

Mr. Bill Moomey, Land Manager with Century, has sent certified letters of intent to permit to each owner of land with a copy forwarded to the EPA.

2. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES:

Attached are local geological maps with site-specific stratigraphic columns for each of the wells referenced above.

